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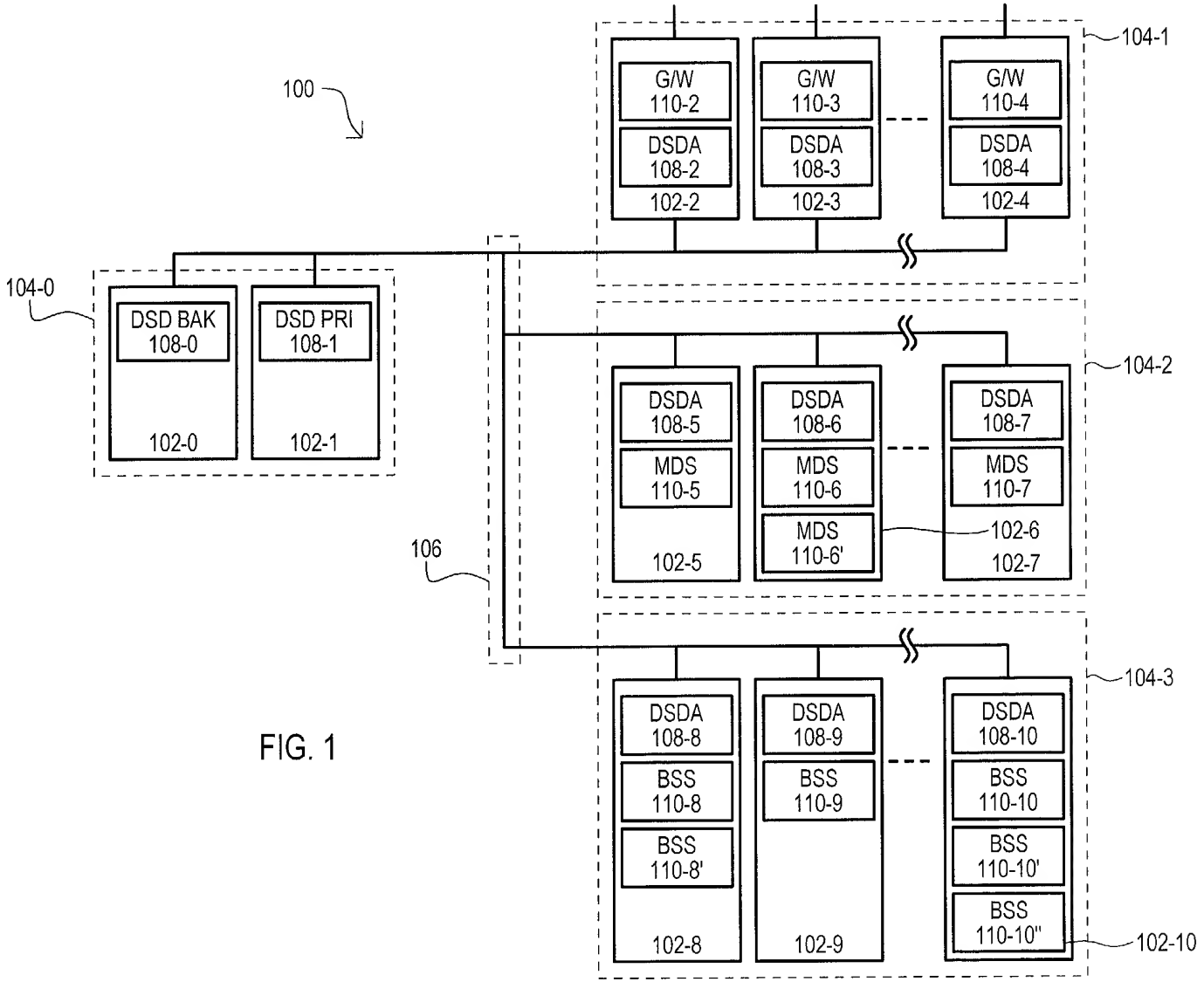

FIG. 1

DSD_MTID_GATEWAY		
Key	Value	Valid
GW.1	HOST2.1860	1
GW.2	HOST3.1862	1
GW.3	HOST4.1863	1
GW.4	HOST2.1864	1
GW.5	HOST2.1880	1

FIG. 2A

DSD_HOST_ROUTE		
Key	Value	Valid
HOST0.0	10.7.6.4	1
HOST0.1	10.8.6.4	1
HOST1.0	10.17.6.4	0
HOST1.1	10.16.0.2	1
HOST1.2	10.16.8.0	1
HOST2.0	10.7.6.6	1
HOST2.1	10.7.6.8	1
HOST3	10.8.7.7	1
HOST9.0	16.7.13.1	1
HOST9.1	18.8.0.0	1
HOST30.0	16.7.16.1	1
HOST30.1	16.7.20.2	1

FIG. 2D

DSD_MTID_METADATA			
Key	Value	Valid	
MDS.1	HOST9:1872	1	Default Primary
MDS.1.0	HOST11:1281	1	
MDS.1.1	HOST9:1872	1	
MDS.2	HOST10:1884	1	
MDS.3	HOST12:1283	1	

FIG. 2B

DSD_MTID_BSS		
Key	Value	Valid
BSS.1	HOST30.1008	1
BSS.2	HOST31.1010	1
BSS.3	HOST32.1012	1
BSS.4	HOST42.1481	1

FIG. 2C

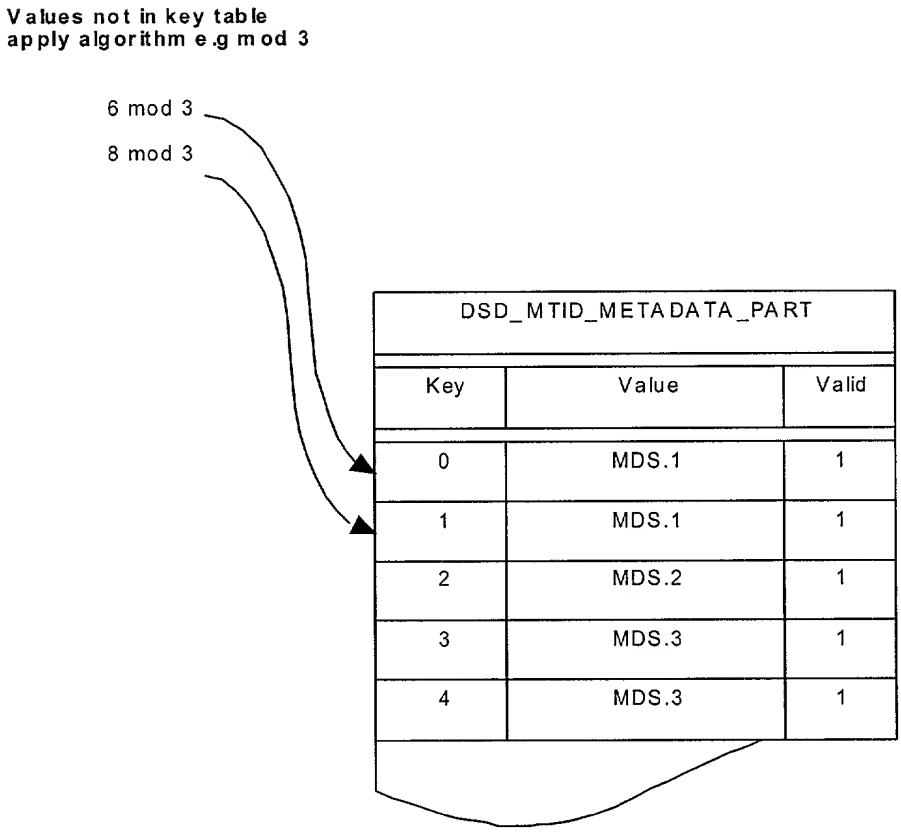

FIG. 2G

DSD_MTID_METADATA_PART

Key	Value	Valid
0	MDS.1	1
1	MDS.1	1
2	MDS.2	1
3	MDS.3	1
4	MDS.3	1

FIG. 2E

DSD_MTID_BITFILE_PART

Key	Value	Valid
0	BSS.4	1
1	BSS.5	1
2	BSS.16	1
3	BSS.3	1
4	BSS.1	1
5	BSS.6	1

FIG. 2F

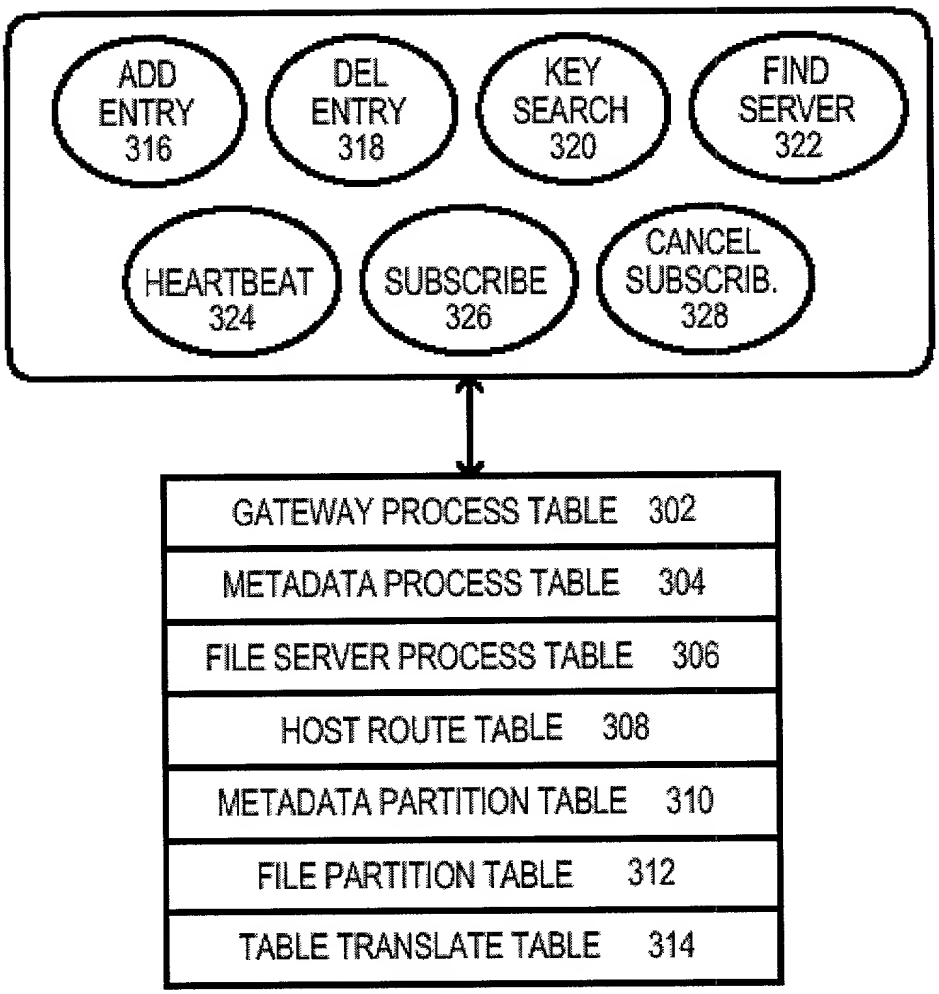

FIG. 3

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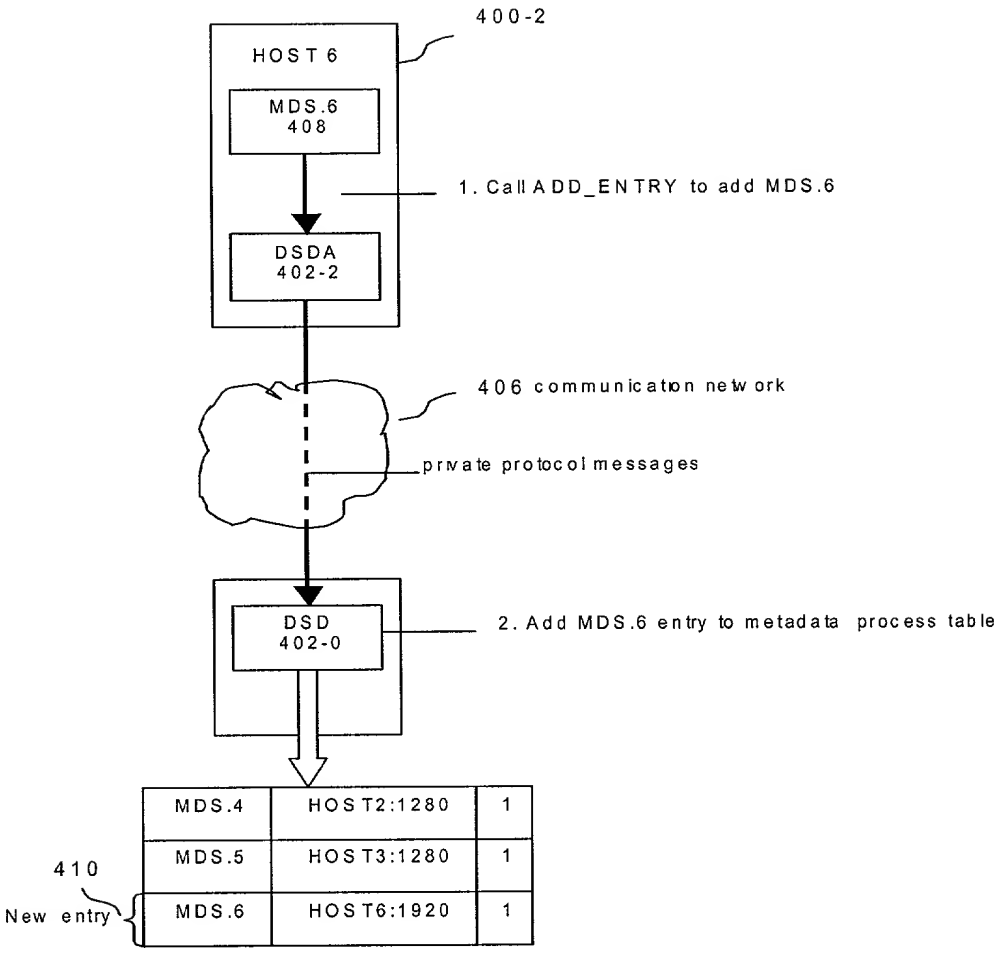
400-2
HOST 6
MDS.6
408
1. Call ADD_ENTRY to add MDS.6
DSDA
402-2
406 communication network
private protocol messages
DSD
402-0
2. Add MDS.6 entry to metadata process table
MDS.4
HOST2:1280
1
MDS.5
HOST3:1280
1
410
New entry
MDS.6
HOST6:1920
1

FIG. 4A

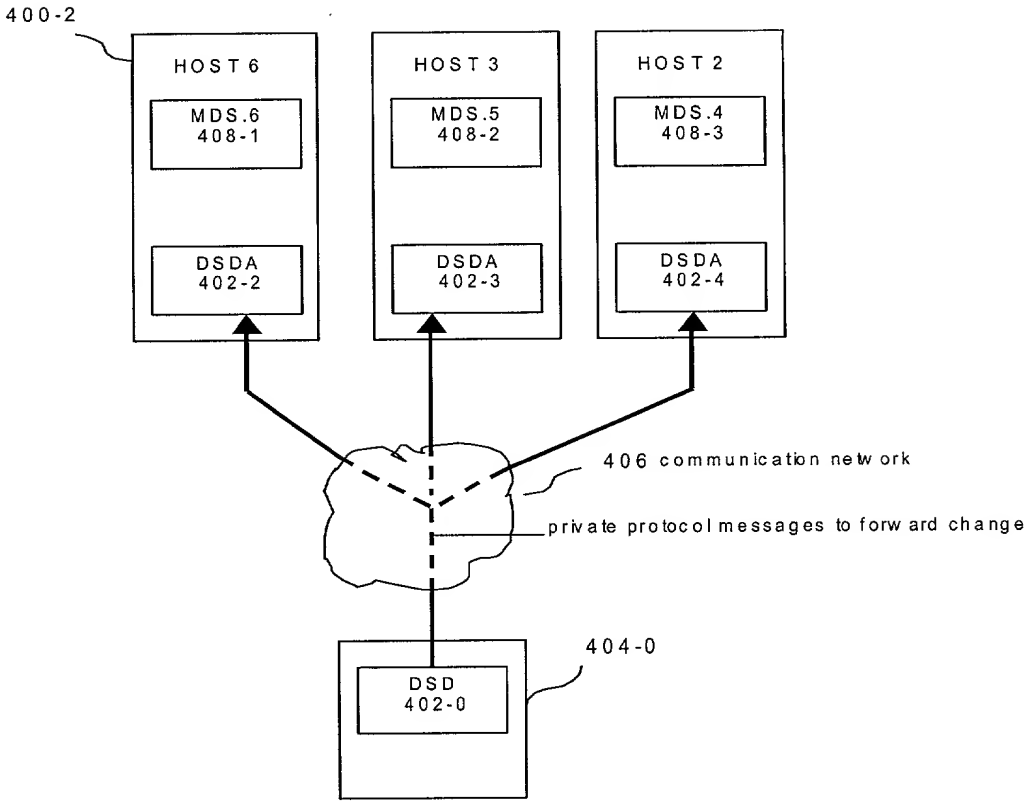
400-2
HOST 6
MDS.6
408-1
DSDA
402-2
HOST 3
MDS.5
408-2
DSDA
402-3
HOST 2
MDS.4
408-3
DSDA
402-4
406 communication network
private protocol messages to forward change
404-0
DSD
402-0

FIG. 4B

```
Function Key_Search {
   input (Table_Name, Prefix)
    For all Entries in Table_Name,
         If Entry.Key starts with Prefix
         Add Entry to Entry_List
    output (Entry_List)
    }
```

FIG. 5A

```
Function Find_Server {
   Call Key_Search input (Server_Table, Prefix), output (Server_Route)
    Extract Host_Name from Server_Route
   Call Key_Search input (Host_Route_Table, Host_Name), output (Host_Route)
    Replace Host_Name in Server_Route with Host_Route to construct Complete_Server_Route
    Output (Complete_Server_Route)
    }
```

FIG. 5B

```
Function Heartbeat {
   input (Entry.Key, Time_Max)
        Entry.Valid = 1, Time = 0
        If Heartbeat received while Time < Time_Max
            Time = 0
        If Time ≥ Time_Max
            Entry.Valid = 0
  }
```

FIG. 5C

```
Function Subscribe {
   input (Subscribe)
        Record subscription (Table, Key_Prefix, Event_Handler, Context,...)
           in Subscription_List
  }
```

FIG. 5D

```
Function Pushed_Entries {
   input (Pushed_Entries)
   For each Subscribe in Subscription_List
      For each Entry  in Pushed_Entries
         If Entry.Table ==Subscribe.Table
            If Entry.key starts with Subscribe.Key_Prefix
               Call Subscribe_Event_Handler
   }
```

FIG. 5E

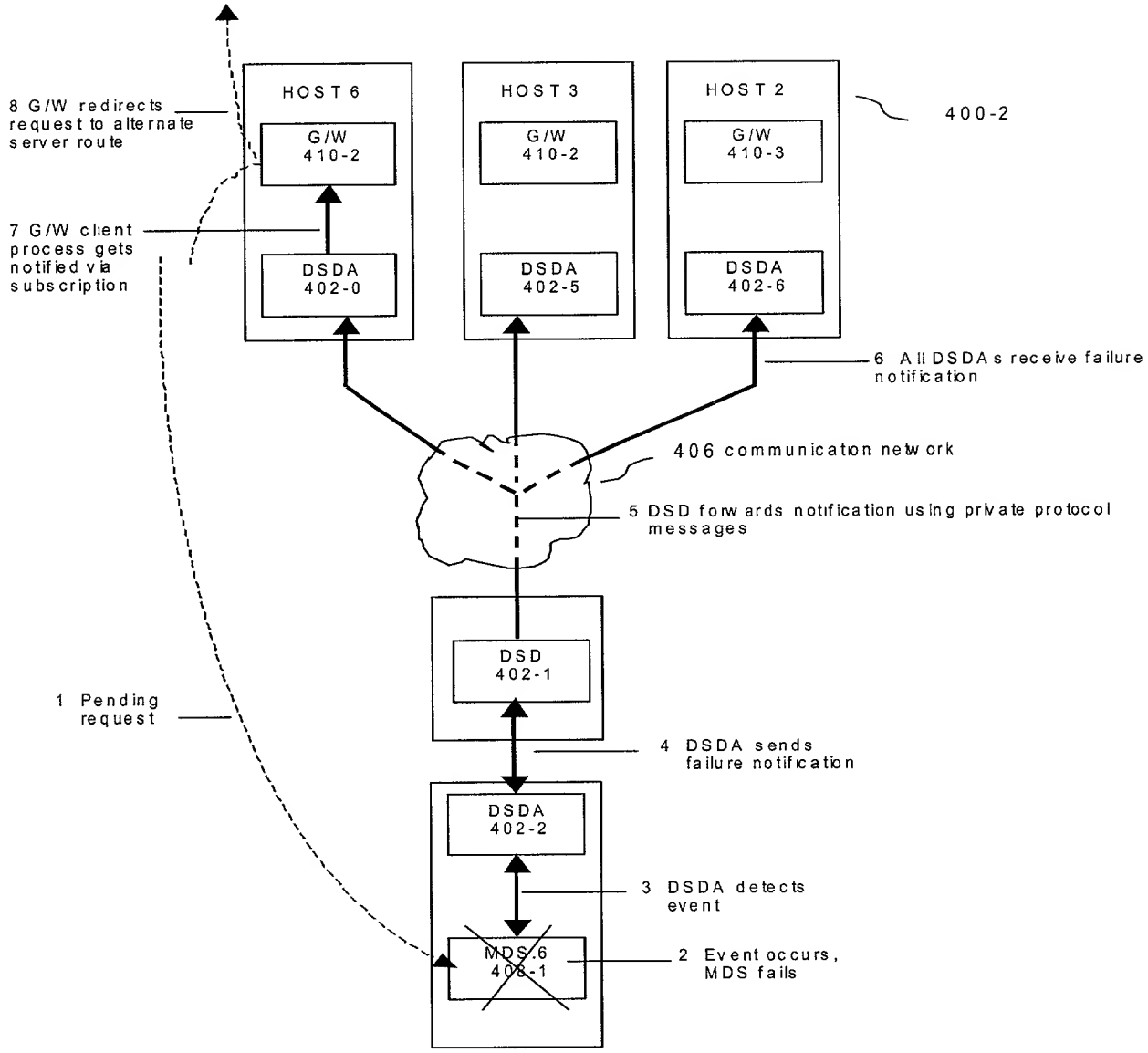

FIG. 4C

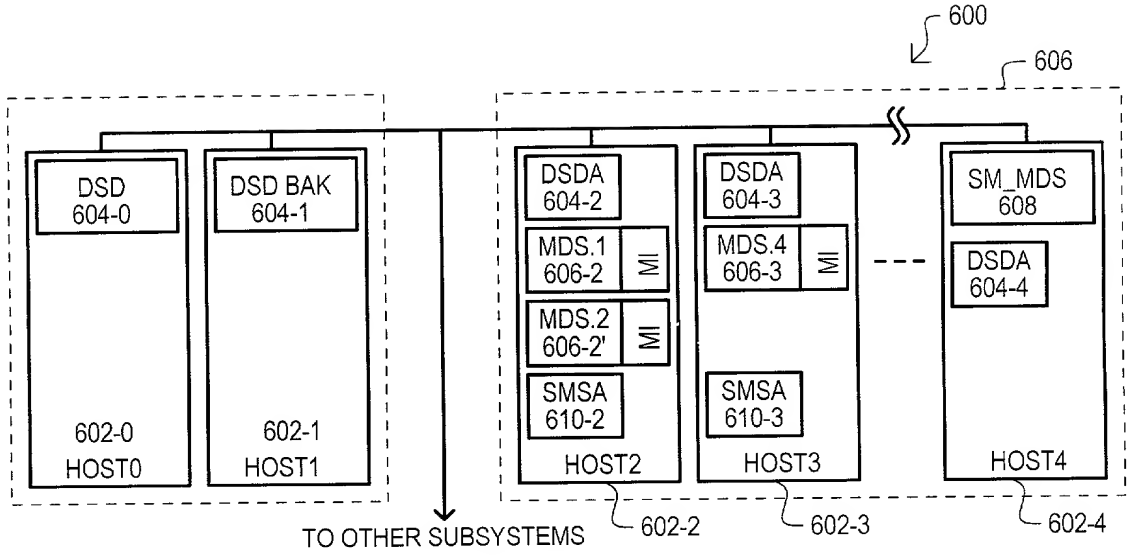

FIG. 6A

DSD_MTID_SERVICE_MASTER		
KEY	VALUE	VALID
SMSA_HOST2	10.6.0.2	1
SMSA_HOST3	10.6.0.8	1

FIG. 6B

DSD_MTID_MANAGEMENT_IF		
KEY	VALUE	VALID
MI_MDS.1.0	10.6.0.2	1
MI_MDS.1.1	10.8.10.8	1

FIG. 6C

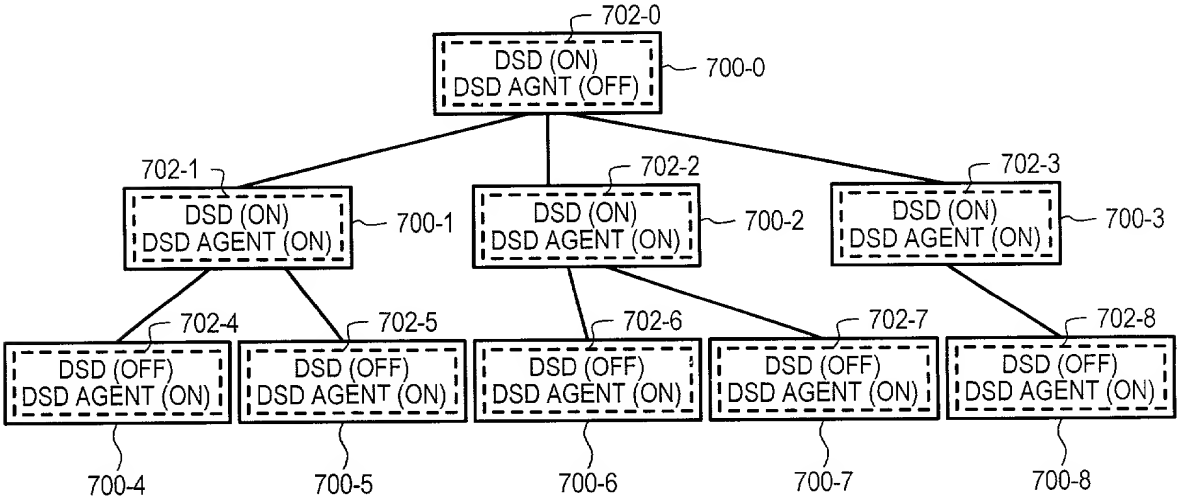

FIG. 7